Distributed WorkLoad Generator for Performance/Load Testing Using Emerging Technologies

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Presenter - Vishnu Murty

- Automation Technologist at DellEMC Infrastructure Solutions Group
- Masters in Software Systems with 15+ years in Leading Validation and Automation efforts.
- Responsible of Delivering Test Automation frameworks and Tools.
- Worked on Server, Storage and System Management Software domains.
- 9 Patents Granted by USPTO and 128 Disclosures recognized by Dell Patent Committee.
- Presented Technical papers in Pycon(Python developer forum), STeP-IN, Targeting Quality 2019 and Quality Connect Conferences.
Abstract

In DellEMC Enterprise Servers Validation Organization, we perform Load testing using different workloads (Web, FTP, Database, Mail, etc.) on Servers to identify the performance of the servers under heavy load is extremely valuable and critical.

Load/Performance testing tools available in market come with their own challenges such as Cost, Learning Curve and Workloads Support.

In this talk we are going to demonstrate how we have built Distributed WorkLoad Generator using emerging technologies like Docker Containers, Axon and Elastic Stack, and how this solution playing a crucial role in Delivering Enterprise Server Validation efforts.
Agenda

- Server Validation Overview
- What is System Test?
- Challenges and Solution
- Technology Stack
- Solution Overview
- What Next?
Server Validation Overview

Validate PowerEdge Solutions
What is Offer Test?

- Customer-focused validation of Sever offering solutions
- Simulates real world usage with typical applications on Servers
Challenges with Current Load Generation Solutions

- Needs to be installed in local Lab on Proprietary hardware.
- Expensive, Complex, Licensing
- Requires highly specialized performance engineers to Develop Scripts
- Data Analytics and Correlation
Proposed Solution

- **JaaS** – JMeter as a Service: on-premise cloud.
  - JMeter, Docker, Elasticsearch-Logstash-Kibana (ELK) Stack
  - Axon – UI
  - DellEMC Hardware as Load Generators
- Massively Scalable across Regions/Labs
- Build or incorporate to support new workloads
- Automate and integrate via REST API
- Advanced Dashboards and Visualizations.
Key Technologies

- **JMeter™**
  - Supports many types of load tests
  - Platform-independent tool
  - Full multithreading framework
  - Open Source Software

- **Docker**
  - Portable
  - Disposable
  - Resource-efficient
  - Open Source

- **Swarm**
  - Cluster management and Orchestration
  - Cluster of Docker nodes
  - Load balancing
  - RESTful API

- **Elastic**
  - Flexible and Powerful
  - Distributed real-time Search and Analytics Engine
  - Schema free & RESTful API
  - Open Source Software
## JaaS - Technology Stack

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**Dellemc Servers**

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JaaS Solution Overview
JaaS Dataflow Diagram
JaaS Orchestration

Distributed WorkLoad Generator for Performance/Load Testing Using Emerging Technologies
Current Supported Workloads

Web Workloads
- Microsoft IIS
- Apache

File Workloads
- FTP
- SMB Server
Current Supported Workloads

Mail Workloads
- Microsoft Exchange
- SendMail

Database Workloads
- Microsoft SQL Server
- MySQL
- MongoDB
- Oracle
Demo
Next Steps

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Q & A